

Text2Mesh: Text-Driven Neural Stylization for Meshes

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Abstract

In this work, we develop intuitive controls for editing the style of 3D objects. Our framework, Text2Mesh, stylizes a 3D mesh by predicting color and local geometric details which conform to a target text prompt. We consider a disentangled representation of a 3D object using a fixed mesh input (content) coupled with a learned neural network, which we term a neural style field network (NSF). In order to modify style, we obtain a similarity score between a text prompt (describing style) and a stylized mesh by harnessing the representational power of CLIP. Text2Mesh requires neither a pre-trained generative model nor a specialized 3D mesh dataset. It can handle low-quality meshes (non-manifold, boundaries, etc.) with arbitrary genus, and does not require UV parameterization. We demonstrate the ability of our technique to synthesize a myriad of styles over a wide variety of 3D meshes. Our code and results are available in our project webpage: <https://threedle.github.io/text2mesh/>.